U.S. unleashes offense

The American soccer team found the net three times in a shocking win against Portugal.

see SPORTS page 9.

Gap closed by smokers

Gov. Taft signed a bill to balance Ohio's budget by increasing the cigarette tax 31 cents.

see STATE page 8.

In other words...

"There is never enough time to say our last word — of our love, of our desire, faith, remorse, submission, revolt."
-Joseph Conrad

Showers

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THE LANTERN

A financially independent student laboratory newspaper at the Ohio State University

Wetlands Park near completion

By Laura McGraw
Lantern staff writer

The OSU Olentangy River Wetlands Research Park needs about $500,000 to complete its drive to fund a new $2.6 million research building.

The Ohio Board of Regents provided $1 million for this project, said Leigh Briggs, the major gift development officer for the College of Food, Agricultural and Environmental Science.

So far, the fund has raised nearly 80 percent of the building gifts and pledges and 13 percent of the operating endowment gifts to meet the goal of the drive, Briggs said.

The Olentangy Wetland Endowment, a permanent fund whose interest will support the park, also supports the fund Briggs said.

About $200,000 of the endowment goal $1.5 million has been raised. The status for the money that has been raised is 13 percent, which is $2,000 of the goal.

A major gift donation allows the donor to name a room in the facility. The average donation is about $25,000, Briggs said.

Construction of the building would be finished in May or June 2003, said William Mitsch, director of the Wetland Research Park.

The Ohio State School of Natural Resources oversees the research facility for the wetlands.

This new facility will give students hands-on experience, Mitsch said. Sixteen different classes at Ohio State will use the facility.

Labs will allow students to conduct their research and education at the wetlands. Students used to have to travel to Chicago to get experience at a wetland, he said.

Conferences and seminars on wetland research, now held in hotels, will be conducted in conference rooms in the new building.

Wright State University, Kenyon College, Shawnee State University and Youngstown State University will also use the facility, Mitsch said.

"This will be an incredible facility for undergraduates and graduates all over the campus," Mitsch said.

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More than just water

Wetlands popular teaching tool for university students

By Lisa Everman
Lantern staff writer

One of the country's most respected outdoor classrooms and research laboratories can be found at Ohio State.

"The wetland program at Ohio State is one of the leading programs in the U.S.," said John Day, a professor at Louisiana State University's department of oceanography and coastal sciences.

OSU's wetland is unique because it was constructed specifically for research, he said.

William Mitsch, a professor in the School of Natural Resources and the director of the Olentangy River Wetland Research Park located at Dodridge Street and Olentangy River Road, is working to understand how wetlands function, and to figure out if they can be rebuilt and if so, how.

"To answer these questions we need to be able to do full scale experiments over a long period of time," Mitsch said.

In April construction was started on a 9,000 square-foot research building on the site. The $2.8 million project should be completed by February 2003.

The Ohio Board of Regents awarded a $1.2 million grant to a consortium of five universities in Ohio for the project. The rest came from private donations, Mitsch said.

Wetlands act as water purifiers, provide floodwater storage and are a haven for wildlife, Mitsch said.

The park has three types of wetlands: two experimental ponds, a seasonally flooded billabong and a bottomland hardwood forest.

"Water from the Olentangy River is continuously pumped into two kidney-shaped ponds that total about 5 acres," Mitsch said.

The 7-acre billabong is waterlogged for two to three months in the spring and fall.

It is dry the rest of the year. Seasonally flooded wetlands were once very common in Ohio along rivers but most have been drained for farming and development, Mitsch said.

"The billabong is a prototype of how a wetland may be rebuilt along a river," Mitsch said.

This type of wetland helps prevent flooding by filling with floodwater before releasing the water slowly, he said.

A 13-acre bottomland forest, which supports cottonwoods, oaks, sycamores, ash, buckeyes and other tress adapted to wet conditions, lies immediately adjacent to a river.

Trees in the forest can tap into groundwater, which is typically close to the surface.

"These forests are very important protectors of the rivers because they serve as filters for pollutants coming from adjacent cities and farmland," Mitsch said.

"The dominant vegetation of Ohio was wet forests until farmers put in drainage ditches," said John Harder, a professor in the department of evolution, ecology and organismal biology who uses the wetland to give his students experience in sampling from natural communities.

Each year the OSU wetland removes 250 pounds of phosphorus, 3,500 pounds of nitrogen and 27 tons of sediments from runoff water before it enters the river, Mitsch said.

"Wetlands do for the landscape what kidneys do for our bodies," Mitsch said. "The whole planet is on dialysis because of the degradation of wetlands," he said.

The wetland and surrounding ecosystem provide a haven for 135 species of birds such as herons, egrets, sandpipers, kingfish and swallows. Muskrat, beaver, mink, red fox, snapping turtles, bullfrogs, water snakes and sunfish are also found in the wetland area.

Sixteen classes from four different colleges use the wetland for teaching purposes.

The wetland gives students a real world connection to the chemistry studied in the classroom, said Susan Olesik, a professor in the department of chemistry.

Olesik said she uses the wetland to teach chemistry 221 students about equilibrium systems.

"The classroom can be very disconnected," Olesik said. "The wetland is a great hands-on chemistry lab."

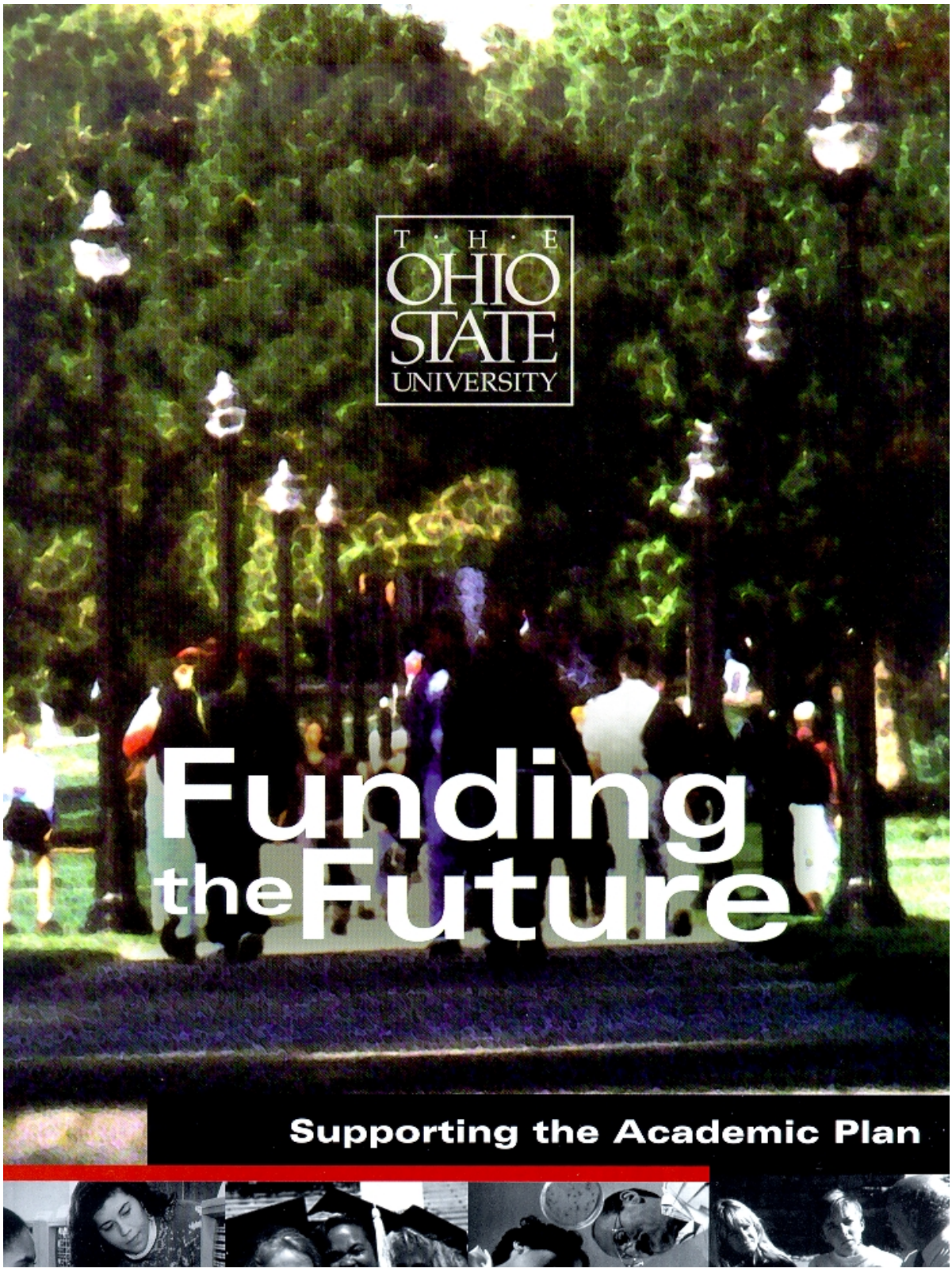
"It is very unusual to be able to go to a natural area so close to campus and accomplish something within a 2 hour lab," Harder said.

> *"The wetland program at Ohio State is one of the leading programs in the U.S."*
>
> **—John Day**
> Professor in Louisiana State University's department of oceanography and coastal sciences

THE LANTERN

LISA EVERMAN/THE LANTERN

Dr. Li Zhang walks across a board walk that provides access to the two research ponds at the Olentangy River Wetland Park.


THE OHIO STATE UNIVERSITY
Funding the Future
Supporting the Academic Plan

College of Food, Agricultural, and Environmental Sciences

Excellence in Teaching, Advising, and Learning Program

(S3 million private fund-raising goal)

Wetland Research and Education Facility and Program Endowment

(estimated $2.6 million goal)

With a culture that honors teaching and advising, the College of Food, Agricultural, and Environmental Sciences is developing an Excellence in Teaching, Advising, and Learning program. Step I of these efforts was completed when a $1.5 million gift from William H. Price of Cody, Wyoming, established the Sanford G. Price and Isabelle P. Barbee Chair in Teaching, Advising, and Learning, in memory of his father and aunt. The chair will enable the college to hire or appoint a nationally acclaimed faculty member who will focus on improving the quality of teaching and advising throughout the college and across the university. The Price Chair serves as a catalyst for Step II in the college's efforts: an Endowed Excellence in Teaching, Advising, and Learning Program. To assist the work of the Price Chair holder and for optimum improvement in instructional competence among faculty members, the college will establish this endowed fund to support teaching enhancement programs, activities, and initiatives, such as master teaching and advising workshops and awards; competitive teaching innovation and globalization funds; student-focused learning initiatives; conference attendance; and equipment modernization. In addition, the college is committed to securing endowed funding to support its Wetland Research and Education Facility and Program. Designed to strengthen and consolidate existing teaching, research, and service activities at the Olentangy River Wetland Research Park, this new facility will feature an operations theater for real-time data collection, a sample preparation room, laboratories, a research library, a conference room and office space, and a lobby for displays. The building will also feature state-of-the-art energy conservation utilities and ecologically friendly building materials. A project total of $4.1 million—including $1.2 million from the Ohio Board of Regents and $300,000 from the Ohio Agricultural Research and Development Center (OARDC), already secured—will add space, facilities, and resources to establish the headquarters for the Ohio Center for Wetland and River Restoration, a consortium of Ohio colleges and universities. The college will also be raising funds to augment the wetland program endowment, which currently stands at $200,000.

Metro

The Columbus Dispatch
THURSDAY
JULY 18, 2002
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TOM DODGE | DISPATCH

Field study | A patch of black-eyed Susans doesn't distract Ohio State University graduate students Chris Anderson, left, and Dan Fink from their research at the Olentangy River Wetlands Research Park. The students counted 70 different kinds of wetland plants.

DOSYA

Doğal temizlik...

Sulak alanlar; böbreklerimiz!

Yazı **Dr. UYGAR ÖZESMİ** Erciyes Üniversitesi Çevre Mühendisliği Bölümü Öğretim Üyesi

Amerika'da Ohio State Üniversitesi'nde William J. Mitsch tarafından tasarlanan ve uygulanan böbrek şeklinde yapay sulak alan (Olentangy Wetland Research Park)

HER geçen gün tüketime ve nüfusa paralel olarak kullandığımız su ve boşalttığımız kirli su artıyor. Türkiye'de boşalan atıksuların sadece yüzde 11'i arıtılıyor. Geri kalanı, bulaşık, çamaşır ve duş suları, dışkılarımızla beraber kanalizasyona, oradan da en yakın akarsuya, göle ve denize boşalıyor. Şehirlerin, köylerin toplardamarları kanalizasyon şebekesi... Kanalizasyon suları da arıtılırsa eğer, doğal yöntemlerle değil, diyaliz makinesi diyebileceğimiz kimyasal arıtma sistemiyle arıtılıyor. Halbuki doğa bize böbrekler bahşetmiş, kendi sularını sulak alanlarda temizliyor.

Ekolojik yaşamda doğadan ders almak ve doğanın sistemlerini taklit ederek onun bilgeliğinden yararlanmak var. Sulak alanlar diyaliz makinesi gibi elektrikle değil, güneş enerjisi ile çalışırlar ve kendi kendilerini yenilerler. Kuşuna, kurduna, kurbağasına yaşam alanı sağlar. Ortamdaki karbondioksiti tüketip oksijen üreterek atmosferin doğal dengesini korur. Organik maddeyi, askıda katı maddeyi*, besinleri, toksik maddeleri, ağır metalleri ve za-

rarlı bakterileri giderebilmesinden dolayı harika birer arıtım sistemidir sulak alanlar. Doğadan ders alıp geliştirilen yapay sulak alanlara ise "inşa edilmiş" veya "ekilmiş sulak alanlar" denmektedir. Klasik arıtma sistmelerine göre inşa ve işletme masrafları düşüktür, elektrik kullanmazlar, üstelik basit ve kolay işletilebilirler. Bu nedenlerle doğal böbrekler, diyaliz makinelerine alternatif bir arıtma sistemi olarak ortaya çıkmıştır.

Ekilmiş sulak alanların ana bileşenleri suya uyum sağlamış bitkiler, toprak ve sudur. Su mercimekleri, su sümbülleri, sazlar, kamışlar, ayakotları kirlilik diye adlandırılan organik besinleri, büyürken bünyelerinde toplar. Bitkiler akan suya karşı durur, onu yavaşlatır ve içindeki katı maddeleri çökeltir. Geniş yüzeyleri ile suyu süzen yararlı bakterilere ortam sağlar. Köklere, oradan toprağa oksijen pompalar, sudaki ağır metalleri çökeltir. Sonra bu bitkiler hasat edilir ve yem, gübre, selüloz hammaddesi, hasır olarak kullanılır. Sulak alan bitkileri toprağa kök salar ve toprak kimyasal dönüşümlerin gerçekleşmesini sağlar. Adı üstünde, sulak alanın en önemli bileşeni sudur. Sulak alanın suyu arıtabilmesi için uygun su döngüsü, bekleme süresi ve derinliği gereklidir.

Dünyada sulak alanlar evsel, mandıra, mezbaha (maalesef hâlâ varlar), kağıt ve petrol gibi endüstri atık sularının ve çöp sızıntılarının arıtımında kullanılıyor. Avusturya'da 293 yapay sulak alan sistemi bulunuyor ve her geçen gün yenileri inşa ediliyor. Çek ve Slovak cumhuriyetlerinde 1995 yılı itibariyle 62 adet yapay sulak alan arıtma sistemi yer alıyor. Danimarka'da genellikle küçük yerleşim bölgelerinin sularının arıtıldığı ve üçte ikisi devlet tarafından yaptırılan 134 yapay sulak alan arıtma tesisi bulunuyor. Kuzey Amerika'da toplam 367 sistemde ve 831 hücrede sulak alan arıtımı yapılıyor. Nepal'de ise ilk yapay sulak alan arıtma tesisi 1997'de inşa edilmiş.

Türkiye'de ilk pilot ölçekte evsel atıksuyu arıtan sulak alan sistemi, Orta Doğu Teknik Üniversitesi'nde E.Asuman Korkusuz tarafından yapıldı. Erciyes Üniversitesi Çevre Mühendisliği Bölümü Araştırma Görevlisi Nuray Ateş ise ilk gerçek boyutta uygulamayı yapmak üzere çalışıyor. Uluabat Gölü kıyısındaki Eskikarağaç köylülerinin isteği üzerine Nuray Ateş, köylülerle beraber bir sulak alan arıtım sistemi inşa edecek.

Doğa, sulak alanlarla kendi kendini temizlemenin yolunu keşfetmiş. Etrafı, biz çoğunu yok etmeden önce, sulak alanlarla bezemiş. Şimdi sıra bizde... Tercihiniz? Böbrek mi, diyaliz mi?

Bilgi için:
Ateş, N. ve Özesmi, U. 2001. Atıksu Arıtımında Sulak Alan Kullanımı. Su Kirliliği ve Kontrolü Dergisi. Cilt 11 Sayı 2 Sayfa 39-54.

** Askıda katı madde-AKM: Suyun içinde askıda kalmış ve bulanıklık yaratan çok küçük kum, kil ve organik madde tanelerinin tümüne verilen isim.*

U.S. to revamp wetlands policy

Army engineers to more closely monitor replacement efforts

By Michael Hawthorne
THE COLUMBUS DISPATCH

Faced with a barrage of complaints, the Bush administration is revising a year-old policy that critics saw as an invitation to destroy environmentally sensitive wetlands.

The U.S. Army Corps of Engineers yesterday released a revamped version of a guidance letter that specifies what developers must do to make up for wetlands destroyed during the construction of roads, shopping malls and houses.

Once considered to be useless, bug-infested swamps that were dredged and filled in at will, wetlands now are valued for their ability to cleanse water, absorb floodwaters and diminish droughts. They also provide homes for rare and endangered plants and animals.

Environmentalists and some federal officials condemned the government's previous policy for abandoning the goal — set by the first Bush administration in 1989 — of "no net loss" of wetlands nationwide.

"We heard the criticism," said Mark Sudol, chief of the corps' regulatory branch.

For more than a decade, developers have been allowed to destroy wetlands if they create substitute patches through a process known as mitigation.

Sudol said the new policy is a response to the agency's critics and a set of recommendations made last year by the National Academy of Sciences, which found that some mitigation projects were never started,

See **WETLANDS** Page **A2**

WETLANDS

FROM PAGE A1

some were not completed and others failed to provide the benefits of natural wetlands.

Working with the U.S. Environmental Protection Agency, the corps will take steps to ensure that developers avoid wetlands when possible, Sudol said.

When artificial wetlands are created to make up for those destroyed by construction, he said, the corps will review the projects more aggressively to ensure they provide ecological benefits.

Environmentalists urged the corps to abandon policies that would let developers fill in wetlands if they preserve other existing wetlands or establish buffers of trees and other vegetation along streams. Neither option would curb the overall loss of wetlands, critics say.

The corps will continue to allow both options, but vowed to review their effectiveness.

"We believe the science is getting better and mitigation is becoming more ecologically successful," Sudol said.

Ohio lost 90 percent of its wetlands between the 1780s and the 1980s, according to a 1997 U.S. Geological Survey report. Nationally, the loss of wetlands has slowed, but the National Academy of Sciences study found that the "no net loss" goal has not been met.

Since 1993, the corps has required about 42,000 acres of substitute wetlands to be built each year on average, according to the study. Those areas were to compensate for the annual loss of about 24,000 acres.

The requirement was only on paper, though. The study found that the corps often fails to track compliance, and when it does, compliance has been poor.

"I guess we should give them credit for trying to do something," said William Mitsch, director of the Olentangy River Wetland Research Park at Ohio State University and a member of the academy's study committee.

"They've been telling us for years that wetlands are being mitigated," Mitsch said. "But the question is we still don't know what we are getting versus what we are losing."

mhawthorne@dispatch.com

Ohio lost 90 percent of its wetlands between the 1780s and the 1980s.

The Columbus Dispatch

Coming next week

MONDAY: Many Ohioans have flown to Arizona's Valley of the Sun — where there's a big football game Friday — with a one-way ticket. **Accent** reports on those who have settled into the desert lifestyle.

MONDAY: She still hasn't won a tournament, but AOL subscribers searched the Web for Anna Kournikova more than any other athlete in 2002. **Connect** has America Online's annual tabulation of Web searches.

WEDNESDAY: What do young people want to accomplish in the coming year? Some **NOW!** readers share their goals.